

Baker

Baker Environmental, Inc.
Airport Office Park, Building 3
420 Rouser Road
Coraopolis, Pennsylvania 15108

(412) 269-6000
FAX (412) 269-2002

February 12, 1993

Commander
Atlantic Division
Naval Facilities Engineering Command
Building N-26, Naval Station
Norfolk, Virginia 23511-6287

Attn: Mr. Byron Brant, P.E.
Engineer-in-Charge
Code 1823

Re: Contract N62470-89-D-4814
Navy CLEAN, District III
Contract Task Order (CTO) 0133
Task 7 - Treatability Study Evaluation Report
for Sites 6 and 9, MCB Camp Lejeune, North Carolina

Dear Mr. Brant:

Enclosed are three copies of the Draft Treatability Study (TS) Evaluation Report, which was prepared in accordance with the scope of work for Task 7 under CTO-0133. The objective of this evaluation report is to identify whether treatability studies will be required to either help in the determination of remedial technologies or to support the design of the remedial alternative selected for the referenced sites. A final TS Evaluation Report will be prepared following the Phase II field investigation at Site 6.

Contaminants of concern have been preliminarily identified for soil, groundwater, sediment, and surface water. For each contaminant of concern, action levels (i.e., remediation goals) were established. The action levels correspond to either an ARAR (e.g., MCLs, AWQC, TSCA guidelines, etc.) or a risk-based concentration (e.g., dermal contact with soil that would result in a 10^{-4} carcinogenic risk). Risk-based action levels are based on the level of contamination that would result in a 10^{-4} carcinogenic risk or a Hazard Index of 1.0 for non-carcinogenic compounds. When calculating these action levels, exposure scenarios assumed that the site would be used in the future as an industrial area (e.g., storage area) and by military personnel. It is important that both EPA and the North Carolina DEHNR agree with the scenarios for establishing the action levels since this will impact the feasibility study (FS). The action levels will be used in the FS to determine "areas of concern" requiring remediation. It is possible that these action levels may change if EPA or DEHNR do not agree with the scenarios or resulting risk level (e.g., EPA or DEHNR may wish for an action level of 10^{-5} or 10^{-6} carcinogenic risk or an HI of 0.5).

Once action levels were established, general response actions and technologies were identified. The technologies were evaluated with respect to whether they would be implementable at the site. Those technologies that were determined to be

Mr. Byron Brant, P.E.
February 12, 1993
Page 2

implementable were further evaluated with respect to what data or information would be required to further evaluate the technology (e.g., removal efficiencies, depth to groundwater, soil characteristics, etc.). In most cases, the data required to evaluate the technology was obtained during the remedial investigation (e.g., soil particle size, pH, etc.) or can be obtained through literature (e.g., Henry's Law Constant). Data not available either from the field investigations or literature searches (i.e., data limitations) were identified.

The need to perform treatability studies focuses on whether these data limitations are critical in the selection or design of the remedial alternative. For example, not having a total organic carbon (TOC) value for water is not critical with respect to evaluating the feasibility of carbon adsorption. On the other hand, not knowing the removal efficiency of biological degradation on soil or groundwater is critical if the technology is to be selected as part of the final remedial alternative. The decision to perform a treatability study is based on the uncertainty resulting from the data limitation when evaluating the technology or designing the alternative.

The action levels for soil are presented in Table 1 of the report. Only a limited number of sampling locations exhibited contamination that exceeded these action levels. Those samples which did exceed the action level were not significantly above the action level. Based on the level of soil contamination, no treatability studies are recommended at this time to adequately assess remedial technologies. Because the extent of soil contamination is not significant, other technologies such as soil capping may be less expensive and provide the same level of environmental protection as treatment technologies.

Please note that this recommendation may change following the upcoming "Phase II" field investigation, which will focus on identifying the source of groundwater contamination north of Lot 203. Treatability studies including soil vapor extraction may be beneficial in the event soil contamination is detected north of Lot 203. If contaminated soils are encountered at elevated levels which would indicate an ongoing source of groundwater contamination, vapor extraction may be feasible for remediating the soil. Bench and pilot studies would provide good information to design the alternative and assure that action levels in soil would be met.

The action levels for groundwater are presented in Table 1 of the report. Groundwater north of Lot 203 exceeds the groundwater action levels and is significantly contaminated with volatiles. Volatiles can be treated with conventional methods such as carbon adsorption and air stripping. Treatability studies to evaluate these technologies are not warranted. However, if these technologies are chosen as part of the remedial alternative in the Record of Decision, bench-scale tests or computer modeling may be useful to determine design parameters. Other technologies that could be applied to remediate groundwater contamination include in-situ biodegradation. In-situ biodegradation is potentially feasible for remediation of shallow groundwater. If biodegradation is considered as part of the remedial alternative selected in the ROD, bench and/or pilot scale treatability studies should be conducted to better evaluate the effectiveness of the technology.

Baker

Mr. Byron Brant, P.E.
February 12, 1993
Page 3

Surface water action levels in Wallace Creek have been exceeded. The source of this contamination is most likely shallow groundwater discharge from Site 6 (north of Lot 203). This will be evaluated further following the Phase II investigation. Direct remediation of surface water may not be practical. Remediation of surface water will most likely be accomplished with remediating the source (i.e., shallow groundwater).

As mentioned above, a final TS Evaluation Report will be prepared following the Phase II field investigation. Preliminary action levels identified in Table 1 should be discussed with both EPA and the DEHNR so that final action levels can be determined. A schedule and general cost estimate for implementing treatability studies will be provided with the final report.

If you have any questions, please do not hesitate to contact me at (412) 269-2016.

Sincerely,

BAKER ENVIRONMENTAL, INC.



Raymond P. Wattras
Project Manager

Enclosures

RPW/nd

cc: Mr. Keith Simmons (w/o enclosure)
Ms. Lee Anne Rapp (w/o enclosure)
Mr. Neal Paul (3 copies)